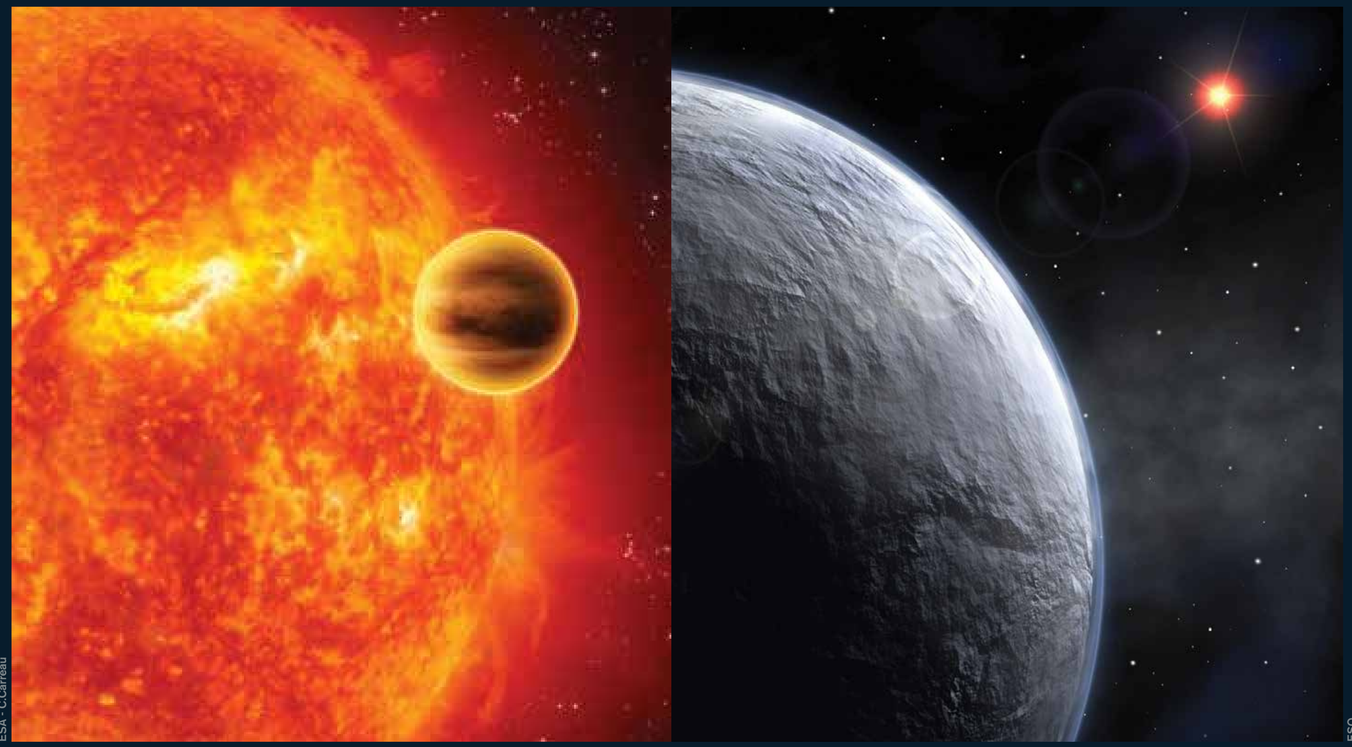
STATION 10 A Galaxy Full of Diverse Exoplanets



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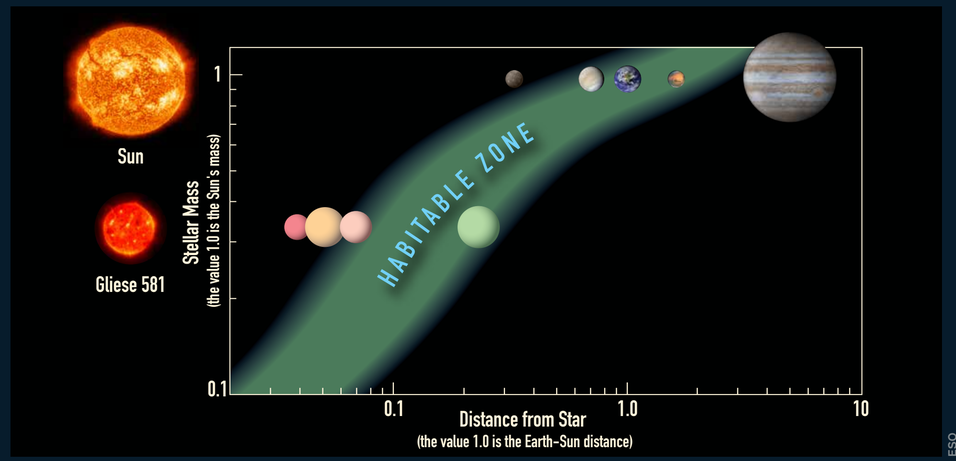
OTHER WORLDS: Notional representations of a "hot Jupiter" orbiting very close to its host star (above, left) and an icy "super Earth" a few times larger than the Earth (above, right). These types of planets have been found around other stars but are not present in the Solar System.

Astronomers have found many planets around other stars both near and far. Some of these "exoplanets" resemble planets in the Solar System, but others are very different. Up to 160 billion planets might exist just in our own galaxy, the Milky Way. We have even found a small hot exoplanet orbiting Alpha Centauri B, the star system nearest to the Sun (four light years away).

THREE PLANETARY SYSTEMS
Diagrams of two exoplanet systems found by NASA's Kepler mission are compared to the Solar System (middle). All three systems have planets in their habitable zones, which are marked by the patterned region. However, these Kepler planets are much more massive than Earth.

Big Bang — Present

What Makes a Planet 'Habitable'?



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HABITABLE ZONES: The Solar System's habitable zone stretches from near Venus to slightly beyond Mars (top). The habitable zone of a smaller, cooler star like Gliese 581 is closer to the star (middle).

The habitable zone is the "Goldilocks region" around a star, where the surface of an Earth-like planet receives the amount of light needed to bring its temperature into the range where water is liquid (0 to 100 °C).